how to take
BETTER PICTURES

By ARTHUR GOLDSMITH

Executive Editor, *Popular Photography*

This booklet is written for everyone who wants to learn photography. It starts at the very beginning and carries you through to the point where you can handle almost any picture-making situation. It assumes that you have studied the instruction manual you received when you bought your camera, and that you know how to operate the camera mechanically. What this booklet teaches you is how to take better pictures. It shows you how to achieve artistry with your camera — whether it is a simple box camera or the most expensive and complicated rig available.

The Editors

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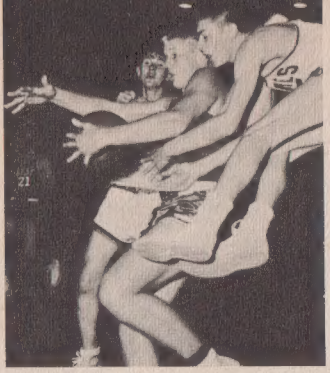


LEARNING TO SEE

AFTER YOU'VE ACQUIRED a reasonable degree of skill in handling your camera, and learned to avoid most of the common mistakes, an exciting new world unfolds before you—the world of pictures.

With few exceptions the best photographs are simple: they have *unity*—one subject, one story to tell and one center of interest.

Exactly what are you trying to say? Where is the heart of your picture? Decide what objects, props, details, bits of scenery, or surroundings are absolutely essential, then ruthlessly exclude everything else.

When you look at a scene directly you see in life-size, in color, and in three dimensions. Without training, most people have difficulty in visualizing how that same scene will look when reduced to a small, flat, black-and-white print.

As you study the view finder, imagine that you are looking at the final print: try to see the subject as a pattern of flat shapes arranged within a rectangular area. If the composition doesn't please you, change camera position and angle until you find a successful arrangement.

Here are two rules that can rarely be violated with success:

Don't split the picture in half. Pictures that are divided into two perfectly equal parts usually look static and uninteresting. If the horizon or some other strong horizontal line appears prominently in the picture, raise or lower the camera angle so that the line falls above or below the picture's center. You should also avoid strong vertical lines or shapes that divide the picture into two even sections, left and right. A slight change in camera position easily corrects this fault.

Don't place the center of interest in the middle of the picture. Every well-organized picture has one area which stands out from the rest and to which the eye keeps returning again and again. If this key area is placed at dead center, the result usually is dull and static. By studying the scene you can place the visual center of interest away from the picture's physical center.

Tonal contrast adds impact to a photograph. Slight variations in gray show movement of water. Use of white on black or black on white adds much greater impact, creates stark impression.

One of the distinctive characteristics of a photograph is its ability to reproduce a wide range of gray tones running from pure white to pure black. Contrast — the difference in brightness—between these tones is another very important picture element. The greatest contrast (and greatest visual impact) is achieved by placing a pure black area next to a pure white one. Slight contrast is achieved by placing two nearly equal tones of gray side by side. When two exactly equal tones touch each other the result is a tone merger, an actual blending of the two areas. The outline of your subject may be lost because of such a merger.

THE CAMERA IS MOVABLE. Given a camera for the first time, most people will stand erect, hold it at eye- or waist-level, depending on the view finder, and choose a medium shooting distance — let's say about 10 or 12 feet.

A camera is an object in space: it can be tipped, tilted, thrust close, pulled back, raised, lowered, or pointed straight up—and the world it sees will look different with each change.

Some subjects inevitably call for *long-shot* treatment. Even when photographing a distant scene, however, it's usually a good idea to include a near-by object or person. Foreground detail adds interest and gives an indication of scale.

For greatest impact, move close to the subject. A *close-up* is dramatic and intimate, and automatically cuts off unwanted details surrounding the subject. A pair of hands, a foot, a single flower, a fragment of a building, a face—details like these can tell your story better than any over-all view.

Any camera position that isn't clearly a long shot or a close-up falls into the category of a *medium shot.* Use a medium camera-to-subject distance when you want to include the entire subject plus some of its environment; for instance, local color in travel shots, or character-revealing props in portraits.

Try shooting from a low angle. Kneel, sit, stoop, or even lie on your stomach, and tilt your camera up. Pose your subject on a sand dune, hilltop, boulder or fallen log and shoot from a lower elevation. A low angle tends to dramatize the

subject and increase the appearance of height.

Explore the possibilities of shooting down on your subject. Climb a mountain, a skyscraper, a chair, or simply tilt your camera downward. Viewed from above, even the most ordinary scene often acquires unexpected interest.

The camera's height above floor or ground has a profound effect on your pictures. To prove this, take three photographs of the same scene, one with the camera resting on the ground, one at waist-level, and one at eye-level, and see how different the world looks from each elevation—even though the camera was held straight and level for each shot!

Once you've chosen the best viewpoint, you have to decide at precisely what instant you should trip the shutter.

Cultivate the keen eye and quick hand of a photojournalist. Try to catch the peak, the high points, not only of physical action but of human emotions and facial expressions.

Exaggerated perspective of converging vertical lines above conveys feeling of great height. Long shot in lower picture gives sweeping, panoramic view.

FACTS ABOUT LENSES

TO IMPROVE your pictures and progress beyond the primitive "shoot-and-hope" stage, it is a good idea to understand a few simple facts about lenses.

FOCAL LENGTH. Focal length is easy to understand. If you've ever burned a hole in a piece of paper by focusing the sun's rays with a magnifying glass, you've seen focal length in action. The glass collected rays of sunlight, bending them so that they hit the paper in one sharp point. The distance from the glass to that point was the focal length.

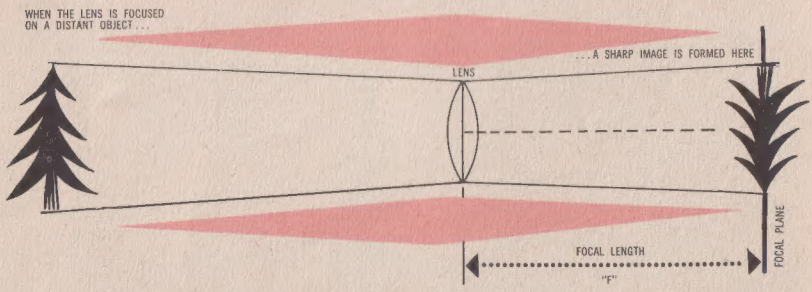
A camera lens works the same way, except that it gathers light rays reflected from many objects and, instead of aiming them at one point, focuses them to form an image on the film.

The focal length is the distance from the lens to the plane behind it where the sharpest image is formed, *when the lens is focused on a distant object.*

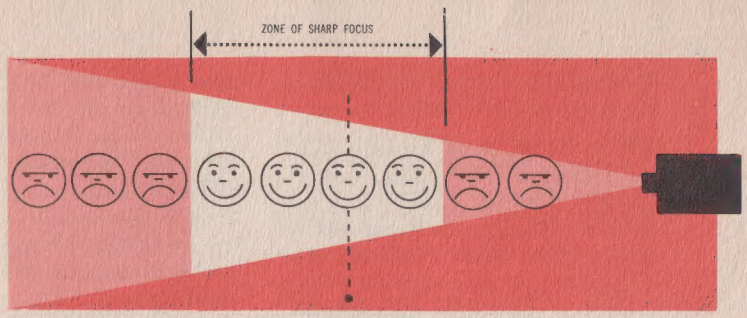
LENS SPEED. The longer the focal length, the farther the light rays must travel to reach the film, and the more scattered they'll be. The speed of a lens depends on the *ratio* between its diameter and focal length. The larger the diameter in proportion to focal length, the higher the speed.

This ratio is expressed in convenient shorthand form by means of *f*-numbers. An *f*/11 lens is one with a focal length 11 times longer than its diameter; an *f*/4 lens has a focal length four times longer, and so on. Thus, the higher the *f*-numbers, the slower the lens.

LENS OPENINGS. Most adjustable cameras are equipped with an iris diaphragm, an ingenious device of thin metal leaves that fold together to make a hole of con-



Focal length, shown by dotted line, is distance from lens to plane where sharp image is formed, when lens is focused at infinity. (Image is upside down and reversed, left-to-right.)



Depth of field—zone of sharp focus—is indicated by horizontal dotted line. Vertical dotted line shows point of focus.

tinuously variable size. Located in or near the lens, it permits you to change the size of the lens opening at will. Each setting, or "stop," is indicated by an *f*-number. To "stop down" or "close down one stop" means to set the diaphragm at the next smallest opening. To "open up one stop" means to set it at the next largest opening.

Lens speed never changes; it's a built-in characteristic, measured with the iris diaphragm wide open. But the adjustable diaphragm permits you to use only as much of that speed as you want.

DEPTH OF FIELD. According to the theory we've been talking about, objects at a given distance from the lens ought to be sharply focused, with everything nearer or farther out of focus. Fortunately, this doesn't hold true in practice. Instead, there's a zone extending forward and backward from the distance focused upon, within which all objects appear reasonably sharp. This zone is called "depth of field," and falls about one-third in front and two-thirds behind the focusing distance. Assume, for example, that your camera is focused on a certain object, and that the total depth of field is 15 feet. The zone of sharpness will extend from about five feet in front of the object to about 10 feet behind it.

FACTS ABOUT FILM

THERE ARE MANY reliable, versatile films on the market; so many, in fact, that the beginner often is confused.

SIZE. First, of course, your choice of film is limited by the size and type of your camera. If you own a 35-mm outfit, you must choose one of the cine-type films designed for such cameras. Thirty-five millimeter films are available in 20- and 36-exposure rolls loaded in metal cartridges. Or you can buy the film in bulk and load your own cartridges. Bantam-type cameras use 828 film, which is the same width as 35-mm but has no perforated edges and is supplied in eight-exposure loads only. Roll film is available in a wide variety of sizes designated by number, such as 120, 620, 116, 616 and 127. If you own a press-type camera, you'll need to use either *sheet* film (individual sheets of film) or *film packs* (con-

taining 12 sheets) in 2¼x3¼, 3¼x4¼ or 4x5 size.

FILM SPEED. A film's speed is its sensitivity to light. Fast, or highly sensitive, emulsions capture a usable image with less exposure than slow emulsions need.

Each black-and-white film is assigned a pair of numbers called exposure indexes. The *daylight exposure index* indicates the film's performance in daylight; the *tungsten exposure index* (which is always less) rates the film's performance under most types of artificial light—such as flash, photoflood, studio lamps, as well as ordinary household light bulbs.

Films rated in the neighborhood of ASA daylight 64-to-100 usually are considered "medium speed" and are recommended for general shooting.

CONTRAST. Contrast is the film's ability to reproduce a wide range of tones. Medium-speed films perform somewhat better in this respect than do high-speed films.

These five different combinations of shutter speed and lens opening all give the same exposure. Middle setting is base exposure in daylight for ultra-fine-grain film.

HOW TO MAKE PERFECT EXPOSURES

UNLESS THE PROPER AMOUNT of light strikes the film during the moment of exposure, you won't get a satisfactory negative, and without a good negative it is difficult, or even impossible, to achieve a good print.

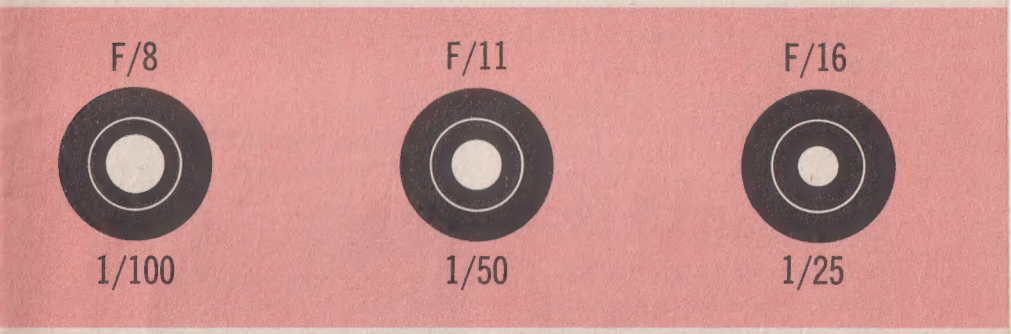
Exposure, which is the total amount of light acting on the film, depends on both the *duration* of the light (controlled by the shutter) and its *intensity* or brightness (controlled by the lens opening).

Various combinations of shutter speed and lens opening will give identical exposure — for example, 1/50 at *f*/11 is equal to 1/100 at *f*/8. By reducing the shutter speed from 1/100 to 1/50 you double the duration of the light, but by decreasing the lens opening from *f*/8 to *f*/11 (the next smallest stop), you cut the light's intensity 50 per cent; exposure remains the same.

EXPOSURE — SIMPLE CAMERA. A typical fixed-exposure camera has a shutter speed of about 1/30 sec. and a lens speed of somewhere between *f*/11 and *f*/16. This combination gives well-exposed pictures in bright sunlight on medium-speed films. On hazy or bright cloudy days, use a fast film—ASA 100 or more. On dark cloudy days, however, or with a subject in deep shade, you are likely to get underexposed negatives even with fast film.

more expensive, are photoelectric exposure meters. You can achieve consistently good outdoor exposures without a meter, however, with the base-exposure method.

BASE-EXPOSURE METHOD. This method utilizes two base-exposure settings—one for slow, ultra-fine-grain films (ASA daylight 32-50), and one for medium-speed, general-purpose films (ASA daylight 64-100)—which give correct exposure for average subjects in bright sunlight.



EXPOSURE — ADJUSTABLE CAMERA. The twin exposure controls of an adjustable camera allow you to admit precisely the amount of light required by the film under various lighting conditions. There are several ways to determine just what the setting should be.

Each roll of film is supplied with a data sheet which tells what settings to use for different subjects and lighting conditions.

More accurate, but considerably

FILM TYPE	BASE EXPOSURE
ultra-fine grain (ASA 32-50)	1/100 sec. at *f*/8
medium speed (ASA 64-100)	1/100 sec. at *f*/16

The above settings are recommended for all-around shooting because they combine a shutter speed fast enough to stop normal action with a lens opening small enough to provide comfortable depth of field. You can, of course, use any other combination that provides the same exposure.

SKY CONDITIONS. If the sky is *hazy* (just veiled enough to soften the sunlight and make the shadows a little less clear-cut than on a bright day), base exposure should be doubled. Open up one full stop or cut shutter speed in half.

On a *bright cloudy* day (when the sky is overcast but the sun is visible as a bright spot and shadows are very indistinct), open up two full stops or decrease shutter speed by two settings.

On a *dull cloudy* day (when neither sun nor shadows are visible), increase base exposure by three stops or the equivalent in reduced shutter speed.

TIME OF DAY. Base exposures are based on midday sunlight. Give one stop more exposure when shooting earlier than two hours after sunrise or later than two hours before sunset.

SEASON OF THE YEAR. In northern latitudes the sunlight waxes and wanes in brightness as the sun climbs high overhead in the summer and drops low on the horizon in winter. To compensate for this seasonal shift, give about half a stop more exposure in early spring or late fall, a full stop more during winter months.

SUBJECT BRIGHTNESS. Base exposures apply to subjects of average tonal brightness: people, objects, houses, gardens and scenes that are about equally divided between light and dark areas.

For close-ups of *light* subjects (a white house or a man in a white suit, for example) or any scene in which light objects predominate, decrease base exposure by one stop.

For close-ups of *dark* objects (dark-furred animals, foliage, people in dark clothing) or scenes in which dark objects predominate, increase base exposure by one stop.

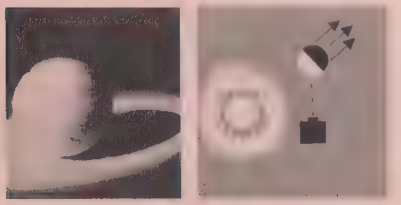
DIRECTION OF LIGHT. When the sun is high and over your shoulder it throws full, even illumination on the subject. Use base exposure for this "flat" (relatively shadowless) lighting. If the light comes from the side, throwing part of the subject in shadow, increase exposure about half a stop. If the light comes from behind the subject, increase exposure at least one full stop.

WORKING WITH SUNLIGHT

LIGHT IS NOT ONLY THE ENERGY which imposes an image on the film; it's also one of the most important visual components of the resulting photograph.

DIRECTION. On a typical "box camera" day with clear sky and bright sunlight, the *direction* of the lighting is the most important and useful tool at your disposal. The same subject looks quite different when light falls on it from the front than when the light comes from the side or back. There are three ways to control the situation: move the camera; move the subject; wait until the sun reaches the right position.

FRONTLIGHTING. No doubt you've heard the ancient photographic saw about always shooting with the sun over your shoulder. This gives frontlighting—full, even illumination of the subject plane facing the camera. Frontlighting is "flat"; that is, it causes few shadows visible to the camera. And it is the safest lighting you can use from the standpoint of exposure, because a normal daylight setting will apply to the entire subject, but it's also the least interesting.



SIDELIGHTING—45 DEGREES. Notice what happens as you move your camera position until the light falls from the side instead of from over your shoulder. Now shadows become visible to the camera—shadows which add modeling (a look of roundness and solidity), reveal texture and increase contrast. The sun should be fairly high (but not directly overhead), and the light should fall at a 45-degree angle to the camera axis.

SIDELIGHTING—90 DEGREES. Extreme sidelighting, or "crosslighting," as it's sometimes called, is lighting which comes directly from the side and just skims the surface of the subject. Use it when you want to emphasize texture. Even such unpromising sub-

jects as a rough board fence, a pile of pumpkins or a snow bank become surprisingly dramatic when photographed by strong, 90-degree sidelighting. This is also a useful lighting for outdoor portraits of men when you want to portray an impression of ruggedness, virility.

BACKLIGHTING. The fourth basic direction is backlighting—illumination that comes from *behind* the subject. This is the most dramatic light of all: long shadows reach toward the camera, blazing high lights appear, the illusion of

three-dimensionality is heightened. Always be sure to use a lens shade for backlighted subjects.

FLASH — HOW TO USE IT

THANKS to the "bottled sunshine" inside flashbulbs, you can take snapshots at night or indoors as easily as you shoot in broad daylight. Here are some of the things you need to know about this modern miracle.

FLASHBULBS. Especially popular today are midget flashbulbs, sometimes called "peanut" bulbs. Although very compact, they deliver a powerful light, and are recommended for general use with most types of cameras. All midgets have convenient snap-in bayonet bases, whereas the medium and large bulbs have screw-in bases like ordinary household lamps.

Even smaller and cheaper (but producing a surprising amount of light) are the M2 miniature flashbulbs. They are designed for close-up shooting with simple cameras where a larger bulb would cause overexposure, but have become increasingly popular with users of adjustable cameras, too. They have a pinless base which plugs into specially designed M2 flashguns but can be used in any unit with an adapter.

TIMES TO "PEAK." Size isn't the only thing you must consider when buying flashbulbs. The time required for the bulb to reach its peak, or brightest burning point, is also important. There are three basic types which you should know.

Class F (fast) flashbulbs require only five milliseconds (1/200 sec.) to reach their peak. SM and SF bulbs fall into this category. They have a relatively low light output and are designed primarily for use with simple flash-synchronized cameras, although they can be used with any camera having "F" synchronization. Their short-duration flash gives an action-stopping effect equal to that of a shutter set at about 1/200 sec. (even if your shutter actually is set for some slower speed).

Class M (medium) bulbs require 20 milliseconds (1/50 sec.) to reach peak, and are designed for use with between-the-lens shutters. The sub-midgets, 5 and Press 25 midgets, and most screw-base bulbs for press and professional photography, are class M bulbs.

Cameras with a focal-plane shutter require flashbulbs that burn with a steady, long-lasting peak to insure even exposure as the shutter slit travels across the film. Such bulbs are classified as FP (focal plane)—for example, the 6 and FP-26 midget flashbulbs.

Be sure to use only the type of flashbulb for which your camera is synchronized. If you use the wrong type of bulb, your shutter will not be open during the bulb's peak, and an underexposed picture will result.

FLASH IN USE. There are four basic methods of using flash.

Flash on the camera: One earmark of the on-camera flash picture is the ugly background shadow cast on the wall behind the subject. The best way to overcome this is to pose your subject far enough away from the wall so that the entire background goes dark.

Flash off the camera: Easy enough with cameras having a removable flash unit, this technique poses something of a problem if your camera has the clip-on type of flash attachment. One solution is to use a self-firing flash unit and the open-flash method. Then you can hold the flashbulb in whatever position you might desire.

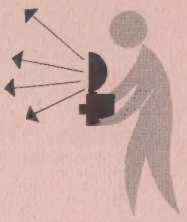
Open flash: Don't attempt open flash pictures unless your lens is stopped down to a fairly small opening, and the existing room lighting is subdued. Otherwise you'll get a double image of the subject — one flash exposure and one brief time exposure recorded while the shutter was open.

Bounce flash: Bounce flash is far more diffused than direct flash, but the light still retains some directional quality. Try bouncing it off a *near-by* wall behind you, thus throwing light into the eyes and other important facial areas of your subject.

FLASH EXPOSURE. If you have a simple camera with an attached flash unit, you merely move closer if you want to increase exposure, or move farther back if you want to decrease it.

With an adjustable camera you can quickly find the proper exposure setting to use at any given distance. The answer is provided by the flashbulb's *guide number.*

The flash guide numbers give approximate exposures only, and you'll need to adjust them according to circumstances. For dark subjects, dark walls and large rooms, increase exposure slightly. For light subjects, white walls and small



Simplest way to take flash pictures is with flash unit fixed to camera.

Detachable flash unit with extension cord can be used to throw 45-degree sidelight on subject.

Flash picture can be shot with non-synchronized camera and hand-held flash unit.

For soft, pleasing, low-contrast flash illumination, try bounce-flash technique.

flashbulb exposure guide for simple cameras

For snapshots or "open flash" method with medium-speed film

Flashbulb	Flashbulb-to-subject distance not closer than	not farther than
SM or SF	6 feet	16 feet
M2	8 feet	20 feet
No. 5 or 25	10 feet	30 feet

rooms, decrease it. An adjustment somewhere between a half and a full stop should do the trick.

BOUNCE-FLASH EXPOSURE. Because bounce flash delivers less light to the subject than direct flash, low output bulbs like SM, SF and 8 are *not* recommended.

Here's a simple way to determine your bounce-flash exposures: first, calculate your *f*-stop as usual, with a guide number based on the direct flashbulb-to-subject distance; then give between two and three stops greater exposure when you take the picture.

SHOOTING IN COLOR

COLOR ADDS an exciting new dimension to your pictures—and it demands a new way of seeing. With black-and-white photography you train yourself to see the subject in terms of gray tones, but with color film you use the contrasts and harmonies of natural colors themselves.

To begin with, there are two basic families of color films: those which yield color prints from *color negatives*, and those which produce "positive" *color transparencies*. A color negative reverses the colors as well as the tonal values of the subject. Not only does light become dark, but red is recorded as green, its complementary color, blue is recorded as yellow, and so on. These color negatives are used to make color prints and enlargements which are viewed by reflected light just as you look at black-and-white prints.

Color transparencies, in contrast to color negatives, retain the color and tonal values of the subject. Transparencies can be viewed by transmitted light and usually are mounted in glass or cardboard to make color slides for use in viewers or projectors.

However, color prints and enlargements also can be made from transparencies.

DAYLIGHT, FLASH OR FLOOD? Color films are available in three basic types of emulsion: a *Daylight Type*, designed to reproduce colors accurately when exposed in bright sunlight; *Type F* or *Flash*, designed for use with clear white flashbulbs; and *Type A*, which is "balanced" to give accu-

rate color rendition with photoflood lamps.

Kodacolor is an exception; it is classified as a "dual-purpose" or "universal" film. Except for Kodacolor, be sure to use an outdoor, daylight-balanced film only with daylight.

EXPOSURE FOR COLOR. Color film generally is slower than black-and-white and therefore requires a longer exposure and/or larger lens opening; color film has less exposure latitude — whereas with black-and-white you could over- or underexpose by two stops or more and get a usable result, with color this margin for error is narrowed to about half a stop.

With color film in a fixed-exposure camera you'll get best results if you limit your shooting to bright sunny days and preferably to front-lighted subjects, unless fill-in lighting is employed.

But if you own an adjustable camera with an *f*/5.6 or faster lens you can shoot color on hazy or bright cloudy days and in open shade as well.

In fact, some of the most charming color effects—subtle pastels and muted monochromes—can be achieved only in soft, diffused light. An exposure meter is recommended to insure consistently good results when shooting under poor lighting conditions.

When in doubt about the exposure of an important picture, *bracket* your shots; that is, make one exposure at what you think is the proper setting, then take another at half a stop more and another at half a stop less. One of the three should be right on the nose. Don't bother to do this in normal shooting, but it's useful when exposure is problematical and the shot is one you don't want to miss.

SKYLIGHT FILTER. If your lens speed permits, you can reduce contrast by posing your subject in open shade or by shooting on a hazy or bright cloudy day. In open shade or on overcast days, however, there is an excess of blue light in the scene.

To prevent an over-all bluish cast in your pictures, use an amber-colored "skylight" filter (or "haze" filter, as it's commonly called). The skylight filter requires no exposure increase.

COLOR WITH FLASH AND FLOOD. The easiest way to take indoor color pictures is to choose a Flash or Type F emulsion and shoot with clear white flashbulbs. To use such films with photoflood bulbs, you need a filter to "tune" the quality of lighting to the color response of the film. Follow directions.

SEEING IN COLOR. A picture in color is still a picture and must stand on its own merits as such. In your fascination with nature's gaudy palette of colors, don't overlook the fundamental ingredients of most good photographs—a meaningful subject seen from an effective viewpoint and caught at a significant moment.

Photographically speaking, we live in an age when color is king. But if it is easier than ever to achieve technically good results in color, it is just as difficult as ever to make a really good color *picture*.